

Claims

What is claimed is:

1. A system for controlling an electric motor, comprising:
an encoder;
5 a central processor in communication with said encoder;
a module processor in communication with said central processor; and
feedback circuitry in communication with said module processor.
2. A system as in claim 1, wherein said encoder is an electronic device that provides
10 rotor and stator positional information to said central processor.
3. A system as in claim 1, further comprising a user interface in communication with
said central processor, wherein said user interface enables a user to select preferred
operational parameters for an electric motor.
- 15 4. A system as in claim 1, wherein said central processor receives rotor and stator
positional information from said encoder and rpm values, and transmits differences in latency
to said module processor.
- 20 5. A system as in claim 1, wherein said module processor receives data from said central
processor and, based on said data, controls one or more coils of an electric motor.
6. A system as in claim 1, wherein said feedback circuitry receives data comprising
25 temperature and coil conditions and transmits it to said module processor.
7. A system as in claim 1, wherein said central processor comprises a field
programmable gate array.
8. A system as in claim 1, further comprising one or more H-bridge circuits in
30 communication with said feedback circuitry.
9. A method for controlling an electric motor, comprising:
determining rotor position based on data received from an encoder;
determining how to energize stator coils;
35 directing a power module to provide appropriate current to appropriate coils; and
monitoring rotor response.

10. A method as in claim 9, wherein said step of determining how to energize stator coils comprises consulting a look-up table.

5 11. A method as in claim 9, wherein said step of determining how to energize stator coils comprises determining which coils to energize.

12. A method as in claim 9, wherein said step of determining how to energize stator coils comprises determining which coils to energize at what times.

10 13. A method as in claim 9, wherein said step of determining how to energize stator coils comprises determining which coils to energize with how much power.